But M. Vulpian rejects the hypothesis which would explain the muscular disorders occasionally connected with neuralgias, by a reference to reflex action. And we are quite prepared to agree with him. He is disposed to attribute both the neuralgia and the muscular disorder to disease of the gray matter of the cord at the points of implantation of the related nerves.

We have long ago insisted on this point in respect to all neuralgias. But important as this point is, in various applications, we cannot do more than strongly commend it to the attention of our readers. It has been often referred to in the pages of the JOURNAL.

In the next, or twenty-fourth lecture, the important subject of the vaso-motor nerves, in the production of congestion and inflammation, is discussed at length. But it will not be possible for us in this number to review it an adequate manner. We will postpone our remarks, therefore, until the next issue, in which it is our intention to carefully consider the whole subject of congestion and inflammation, as affected by the nervous system. We can promise our readers that the most interesting and practical part of this great work of Prof. Vulpian lies in the latter half of the second volume.

(To be Continued.)

V. AMERICAN NEUROLOGICAL ASSOCIATION.

TRANSACTIONS OF THE AMERICAN NEUROLOGICAL ASSOCIATION FOR 1875. Edited by F. P. Kinnicutt, M. D., and T. A. McBride, M. D. Vol. I. New York 1875, 257 pages.

Readers of the JOURNAL have been made familiar already with the organization and plan of operations of the American Neurological Association. A rather full account of the proceedings, at the first meeting, was published in the July number of our last volume.

The organization was somewhat suddenly effected, in conformity with a call, issued less than six months prior to the meeting, and the visible results are contained in this goodly volume of 254 pages, which we have no hesitation in saying, is fully equal to the published work of any other American Medical society, that has appeared during the past year, notwithstanding the fact, that it relates to the initial meeting, and the fact of the smallness of its list of members.

Besides an account of proceedings, it contains 21 papers, the shortest being about one page, and the longest seventy. Their titles are as follows :

1. Analgesia, by J. J. Putnam, M. D.
2. A study of Myelitis, by S. G. Webber, M. D.
3. On the structure of the nervous tissues and their mode of action, by H. D. Schmidt, M. D.
4. On pigmentary deposits in the Brain resulting from malarial poisoning, by W. A. Hammond, M. D.
5. Neuralgia and other neuroses arising from cicatrices of the scalp, and their surgical treatment, by F. D. Lente, M. D.
6. Dabtetes Insipidus caused by disease of the external ear, by J. S. Jewell, M. D.
7. A case of mania with tranmatic hemiplegia, by Walter Hay, M. D.
8. A peculiar complication of right hemiplegia, by John Van Bibber, M. D.
9. Complex automatic muscular movements, by T. M. B Cross, M. D.
10. A peculiar Complication of Right Hemiplegia, by John Van Bibber, M. D.
11. A Case of Athetoid Affection, by D. F. Lincoln, M. D.
12. A Clinical Contribution, on Insanity in Children induced by Masturbation, by F. P. Kinnicutt, M. D.
13. Insanity caused by a wound of the Brachial plexus, by J. S. Jewell, M. D.
14. A Case of Injury to the brachial Plexus, by Walter Hay, M. D.
15. A Case of injury to the Brachial Plexus, by J. J. Putnam, M. D.
16. A Case of Acute Spinal Paralysis, by F. T. Miles, M. D.
17. A Case of Fracture of the Odontoid Process with dislocation of the Atlas, by E. R. Hun, M. D.
18. Phosphorus in the treatment of neuralgia and other neuroses with cases, by N. B. Emerson, M. D.
19. On the treatment of paralyzed muscles by elastic relaxation, by John Van Bibber, M. D.
20. A new Dynamometer, by Allan McLane Hamilton, M. D.
21. A Case of nerve injury followed by interesting nerve lesions, by John Van Bibber, M. D.

The first paper by Dr. J. J. Putnam gives the history of the case of a young man who after apparent recovery from typhoid fever observed that wounds of his left hand healed but slowly and that certain injuries to it and to the arm gave no pain. On examination an analgesic condition of the left arm and hand, the shoulder and left side of the body down to the level of the eighth rib, was discovered. The hand could be kept in water ranging from 120 ° F. to 160 ° F., for from several seconds to two minutes, and pricking by a pin failed to cause pain. At the same time the tactile sensibility was still preserved though modified, nutrition only slightly affected, and motor power perfect.

Dr. Putnam was inclined to consider this limited or partial paralysis of sensation as of peripheral origin and enters upon a rather long and learned discussion covering much of the whole question of the physiology and psychology of sensation. He feels justified in the light of the facts known and the deductions legitimately drawn from them in concluding that the disorder in this case exerted its influence on the peripheral nerves of the affected portion of the skin, causing an impairment of the functional activity of either the nerve trunks or their terminal apparatus in the skin.

In the discussion which followed, Dr. Seguin thought that the peculiarities of sensation in this case depended upon an encephalic trouble, a theory with which we are somewhat inclined to agree. Still there is a possibility that the disorder in such cases may be peripheral; the most striking point against this is, that we have no demonstrated proof of the existence of such special peripheral apparatuses as are required by this supposition. Dr. Putnam does not fortify his case by the analogy of the special senses, color blindness for example, which may be due to either central or peripheral disorder, but which in our opinion more generally has the former than the latter cause. In the case of partial deafness, however, the reverse may be the case.

If the theory recently developed by McDonnell and which had been hinted at previously by others, that instead of special fibres for the various kinds of sensations, as held by Brown-Sequard, we have one fibre conducting them all by means of variously graduated vibrations, be true, there appears to us to be still more reason to infer central rather than peripheral trouble in these cases. In this case there is no need, it seems to us, of any very special peripheral apparatus. And this theory certainly seems worthy of adoption in preference to the clumsy contrivance, comparatively speaking, supposed by Brown-Sequard, especially since it is supported by very strong physical analogies,—such for instance as the recent telegraphic inventions, like the Gray telephone which utilizes this principle in telegraphy. An acquaintance with the economic arts, in cases like this may be an aid to the scientific imagination.

The second paper, that of Dr. Webber on myelitis, is one of the best in the volume. The author gives detailed statements of the autopsies in two cases of spinal disease, one of what was probably adult spinal paralysis and the other of generalized myelitis, affecting mostly, however, the lateral columns more especially in the lower dorsal and lumbar regions. It is the careful detail of these examinations that gives the principal value to the article, and in this respect it leaves little to be desired. The clinical histories are brief, but sufficient to introduce the facts observed in the autopsies.

The first case, that of adult spinal paralysis, was peculiar in some of its features, the wasting and degeneration of certain groups of muscles and the absence of cutaneous lesions, which were noticed by Dr. Seguin in the discussion which followed the presentation of the paper. It was presented by Dr. Webber as proving that the lesions of the cord in adult spinal paralysis were not confined to the anterior ganglion cells.

The paper by Dr. Schmidt, of New Orleans, is the longest, and most noticeable in the volume. It has condensed within the narrow limits of seventy pages, an account of the results of extensive and critical researches into the minute structure of nearly every part of the nervous system, excepting the peripheral sensory apparatuses. It is not possible to judge as to the extent of his knowledge of the work of others for his paper is strikingly devoid of literary references. But no one at all familiar with the subject of the paper can read it without being impressed with the extent and thoroughness of the work of which it professes to sum up the chief results. But we will pass at once to notice alike, what seems to us to be its chief excellences and defects.

Dr. Schmidt enters on a very full, and as it would seem original account of the structure of the nerve fibre, more particularly its axis cylinder. He declares he had determined its "fibrillar" character, prior to his knowledge of Schultze's researches. The fibrillae, are composed of minute beads or granules, plainly perceptible in the embryonic state and demonstrable at all periods of life in the nervous system of insects. No mention is made of the rather remarkable researches of M. Ranvier, in respect to the structure of nerve fibres.

But the results of his observations are mainly inaccordance with those of Max Schultze, Frommann, and Grandry. The "ganglionic bodies," or nerve cells, (he denies they are cells) he declares, have a fibrillar structure, similar to that of the fibres. He says in fact that "the whole ganglionic body, therefore, represents a plexus of nervous fibrillae, which, arriving at the body by one process, and leaving it by another, embrace the nucleus," or again, "I have demonstrated above, that a so-called nerve cell represents no cell at all, but merely a plexus of fine nervous fibrillae, surrounding the so-called nucleus." We can hardly accept such views, or rather such a modification in nomenclature as is virtually proposed, until a greater number of histologists have confirmed Dr. Schmidt's findings.

He decides on the grounds of his own researches, that the neuroglia is a nervous substance rather than an imperfect form of connective tissue. He does not mention the so-called "Deiters cell," recently figured and discussed with so great care by Boll only to be disputed by Ranvier.

In the next place, Dr. Schmidt enters on a condensed statement of his investigations in respect to the minute structure of the nervous system of insects. We would be glad to give the results of a comparison of his results with those for example of Leydig, on the same subject as contained in the *Arch. f. Anat.*

Phys. u. Wissenschaftliche Med. of Reichert and DuBois Reymond, but cannot give space to them. He passes next to the results of personal researches on the minute anatomy of the cord and brain. They seem to agree in the main so far as the cord is concerned with those of Gerlach, of Erlangen. His statements as to the mode of disposition of the elements of the cord, when they are traced upward through the medulla and pons, do not accord with later and more elaborate researches on this subject, especially those of Sappey and Duval, a full account of which, will be found in the periscope of the present number.

His accounts of the source and disposition of fibres at the commissures of the cord, and of the formation of plexuses, between the "ganglionic bodies," by means of their poles or "candate" processes, are full and interesting. He declares that he has seen nerve fibres arise from these plexuses as well as from the "ganglionic bodies." In the next few pages we find a very full and instructive description of the structure of the cerebral cortex, based on his own researches. It is one of the most valuable parts of the paper. It differs in some points from the descriptions given by Clarke, Luys, Arndt, Obersteiner, Betz, Golgi and others as, indeed, they differ from one another. But to compare critically his observations, with the results of Betz, Arndt, Golgi, etc., would not be possible within the limits of this notice. So far as we are capable of judging, Dr. Schmidt's observations may be regarded as in the main correct.

The next subject is the so-called sympathetic nervous system. He notices in common with other observers, that its fibres are of two kinds, "gray," and "dark-bordered." He raises and discusses the question as to the origin of the "dark bordered" fibres, whether they are from the cord or sympathetic ganglia.

He has found both gray and white fibres in communicating branches, and upon following them to their point of junction with the root of the spinal nerve, he saw most of the fibres both white and gray bend toward the periphery instead of proceeding toward the cord. Those white fibres, which could be traced from the sympathetic ganglia, toward the periphery, could not be supposed of course to take their origin from the gray matter of the cord. They must arise from the "ganglionic bodies" of the sympathic. But the author must have been aware that the same opinion has been definitely entertained some time since, by various observers, such as Courvoisier, Schwalbe, Arndt and others.

He states that the sensory root is larger on the central than the peripheral side of its ganglion. But this is not in accordance with the statements of several excellent observers who have given the subject careful attention.

In describing the sympathetic "ganglionic bodies," Dr. Schmidt agrees closely with the accounts given of them by J. Arnold, especially, as concerns the reticulated appearance of their capsule. This appearance according to Dr. Schmidt, is due to certain processes, which spring from the ganglionic body. and instead of leading off to terminate in an interganglionic net work, or to give origin directly to the axis cylinders of nerve fibres, ramify on the capsule of the "body," so as to form a loose net work about it, the meshes of which are filled with granules. But neither Schwalbe, Courvoisier nor Arndt, not to speak of others, have interpreted the reticulated appearance in the wall of the "ganglionic body," as Arnold did and as Dr. Schmidt does, but as rather due to the lines of apposition of the "endothelium" which they have figured as a histological constituent of the part in question. A quite recent paper of Arndt, in Schultze's, *Archiv f. Mik. Anat* maintains this view.

Next in order, are some interesting remarks, on the peripheral terminations of motor nerve fibres, but they contain nothing novel. Dr. Schmidt gives a very short but clear resume of his researches on the histogenesis of the nervous elements, but especially the nerve fibres. They begin in a fine granular condition of a structureless, transparent protoplasm. These granules or beads apparently arrange themselves in lines which become the "fibrillae," of the axis cylinder. But the accounts of this development of the histological elements of the nervous system, has only the value which attaches to the work of a single observer in a domain, to which some of the most accomplished microscopists in the world have given their careful attention. The value of statements like these of Dr. Schmidt, can only be determined by a critical comparison with the results of their labors. But we cannot attempt this in the present brief notice.

Dr. Schmidt now passes to the "mode of action of the nervous tissues." In this domain, our author is neither so interesting nor fortunate as in that of minute anatomy.

He adopts, on the whole Mr. Spencer's views, which are set forth with particular fullness in vol. I. of his Psychology, P. 511, under the title of "genesis of nerves," etc. But we look upon this account of Mr. Spencer's, as almost purely speculative, and though ingenious, yet as a signal instance of trespass, on the grounds forbidden to legitimate inference. This is no hastily adopted conclusion, but is one we will not hesitate to endeavor to justify.

But we have neither the time nor space at present to point out how far we either agree or disagree with Mr. Spencer's views as to the genesis and earlier modes of action of the nervous system. We expect to take an early opportunity to discuss these topics however, in a manner commensurate with their importance.

Dr. Schmidt, holds at least hypothetically, to the "identity of *mind* with that force generated by the molecular changes occurring in the granular substance." Whenever such a view is scientifically established, as it has not been, we will admit it, but not until then. Dr. Schmidt says, if mind exists it must be ponderable, "for if it was imponderable, it would be equivalent to *nothing*." We place this statement in the same category, as the preceding one. He further says, that "according to the present state of science *force* is an *attribute of matter*." We do not hesitate to contradict this statement, in saying that there is no more reason to think that force is an attribute of matter, than that matter is an attribute of force. Dr. Schmidt is evidently not widely read in the literature of the speculative side of science, or he would hardly venture such a statement without some qualification. Dr. Schmidt's theory of memory is the same as that of the Hartleian school, though not so definite. His philosophy so far he exhibits it, is simply that of the sensational school of Locke, and of the baldest form.

His mode of explaining the genesis, and action of the mental faculties, especially the emotions, is painfully mechanical. For example: "The child in remembering the manifold kind and benevolent actions shown to him in the course of years by his parent, and recognizing by experience the effect of these actions upon his own welfare, becomes attached to the parent, and, when in need, will recur to him prompted by the confidence to which the various kind and useful actions gave rise on its mind. *The confidence thus awakened, will end in filial love.*" But *will* it though? "*In this manner*, *all other* faculties and affections of the mind, may be analyzed and traced back to impressions derived from the external world."

After giving no little attention to this subject, we do not hesitate for our own part to declare any such physical attempt to explain the origin of the mind or its higher faculties, as failures.

But we cannot give any further space to a notice of this, upon the whole, valuable paper. We would not close until we have given a fresh expression to the interest we will feel in the further results of his interesting researches on the minute anatomy of the nervous system, where he is evidently a master.

The paper by Dr. Hammond is the most original, perhaps, in the volume. Its object is "to call attention to a very remarkable condition of the brain, the result of malarial fevers, and which, though hitherto not altogether ignored, has scarcely obtained that consideration which its importance demands.

This is the disposition of pigment in the brain, either in the form of emboli, obstructing the smaller vessels and the capillaries suddenly; or of thrombi, the pigment being slowly deposited along the inner wall of the vessels, and thus gradually leading to their occlusion: or as a transudation into the perivascular tissue."

Dr. Hammond gives a rather extended history of earlier observations, in respect to pigmentary matter in the blood, more particularly in connexion with splenic disease. He reports five cases (no post mortems) of nervous disease, in which he had reason to suspect a connection between the nervous (cerebral) affections, and disease of the spleen. The theory being that the cerebral symptoms were caused by embolism of the small cerebral vessels, the emboli consisting of pigmentary matter derived from a diseased spleen. Dr. H. says, "my views in relation to the connection between the deposits and the spleen are that the pigment is first formed in the spleen; that it enters the general circulation, is deposited in the bloodvessels of the brain, or passes through their coats, giving rise to disturbances in the functions of this organ, and, that it also often enters the ophthalmic vessels, and can be detected by ophthalmoscopic examination."

As proofs of the correctness of this view, Dr. Hammond drew blood from the spleens of certain of his patients, by using a large hypodermic syringe as an aspirator, and found pigmentary masses in the blood so obtained. Dr. Hammond also performed certain experiments with the aim of confirming his views. They included the injection of indigo pigment into the circulation, and watching its places of arrest, if at all, in the small vessels. But up to the time of publication of the paper the experimental results, though not contradictory to the clinical views of the author were not sufficiently striking to warrant their detailed recital. The following are the conclusions of the paper:

1st. That as a consequence of malarial poisoning, the pigment of the blood undergoes a change in appearance and form, and that the alteration is effected in the spleen, leading to hypertrophy of this organ.

2d. That this pigment may enter the general circulation from the spleen, either in a free condition or in pigment holding cells, and that it may be deposited in the cerebral bloodvessels, or pass through their coats.

3d. That these deposits may give rise to various symptoms, indicating derangement of the nervous system.

4th. That arsenic appears to have the power of, in a way at present unknown, so altering the character of the pigmentary deposits as to facilitate their removal, and to cause the disappearance of the symptoms to which they give rise.

5th. That we may have, during the life of the individual, ocular demonstrations of these facts by the presence of pigment in the fundus of the eye, as revealed by the ophthalmoscope.

But in our opinion some of the positions taken in this paper may be questioned. The rarity of cerebral symptoms in cases of splenic enlargement, in malarial countries such as we have lived in, and in which we have first and last seen almost hundreds of cases of malarial, involving splenic disease, and yet without special cerebral symptoms, seems to our own minds, an objection to the view of the learned author.

Then again is the finding of pigmentary matter in the spleen a subject for surprise? Is it not a natural, or, at least, frequent constituent of the splenic substance? But even admitting that the blood flowing from an enlarged spleen, is more or less charged with pigment in some form or other, what reason have we for thinking it would not be mostly filtered out by the capillaries of the liver and lungs through which it must pass before reaching the brain?

It is true the capillaries of the brain are comparatively small, but even if the pigment manages to pass the capillaries of the liver and lungs—and we do not doubt but it may—why not accumulate in the vessels of the cord and medulla, as well as the brain, and give rise to the pronounced symptoms and morbid appearances? Is it probable the pigment could adhere to the lining membrane of the capillaries of the cortex, without disease and roughing of that membrane? But if there should be disease of the lining membranes of the minute vessels of limited tracts of the brain, would this not account for the symptoms, and not simply the accumulation, but possibly the local production of the pigment? Then what can be the reason for thinking that the supposed pigment accumulations, were dissolved away by the arsenic administered?

Of the other articles two or three deserve special notice. Dr. Lente calls attention to cicatrices of the scalp as a cause of such nervous disorders as neuralgia, epilepsy, etc., and shows by cases that these are perhaps not as unfrequent causes of nervous trouble as has been supposed. Dr. Jewell's papers on reflex diabetes and insanity are of clinical interest, but the fortunate absence of autopsies, detracts from their absolute scientific value. The case of insanity from a wound of the brachial plexus is the most doubtful of the two, though the theory advanced is, perhaps, under the circumstances, as well supported as any. Dr. Hay's case of hemiplegia from a cerebral lesion on the corresponding side of the brain is one of a class of observations that is always open to question, and in the opinion of such a clinicist as Charcot much more than doubtful.

One of the more valuable practical papers in this part of the volume is that by Dr. N. B. Emerson on the use of phosphorus in neuralgia locomotor atæxia, etc. The tabulated list of cases, and the discussion which the author gives the subject, are sufficient to justify the expectation of important therapeutic results from the cautious use of this drug in these disorders. The author describes mainly the effects of free phosphorus as thus employed, and considers all the salts of phosphorus as insufficient substitutes, with the probable exception only of phosphide of zinc. He recommends, from his own experience, the alcoholic solution known as Thompson's solution of phosphorus, which he has given in doses of 1–20 of a grain or less. The paper is well worthy of the attention of the reader.

In conclusion, we would say that the members of the Association may well feel gratified, at the character of this initial volume of their Transactions, especially when they remember that the working time of the meeting did not much exceed *nine hours.* We earnestly hope that the association may become an established fact, and become the means of awakening fresh interest in the important department of medicine to which it is devoted, and of making substantial contributions to medical science.

SHORTER NOTICES.

I. A Treatise on the Diseases of Infancy and Childhood. By J. Lewis Smith, M.D., Physician to the New York Infants Hospital, etc. Third edition, enlarged and thoroughly revised, with illustrations. Philadelphia: Henry C. Lea. 1876. 724 pages. Chicago: W. B. Keen, Cooke & Co.

II. A System of Midwifery, Including the Diseases of Pregnancy and the Puerperal State. By William Leishman, M.D., Regius Professor of Midwifery in the University of Glasgow, etc. Second American from the second and revised English edition. With additions by Jno. S. Parry, M.D. Philadelphia: Henry C. Lea. 1875. Chicago: Jansen McClurg & Co. 766 pages.

III. Extra-uterine Pregnancy; Its Causes, Species, Pathological Anatomy, Clinical History, Diagnosis, Prognosis, and Treatment. By John S. Parry, M.D., Obstetrician to the Philadelphia Hospital, Physician to the Department for the Diseases of Women in the Presbyterian Hospital, etc. Philadelphia: Henry C. Lea. 1876. Chicago: W. B. Keen, Cooke & Co. 276 pages.

IV. Transactions of the Pathological Society of Philadelphia. Volume Fifth. Containing the report of the Proceedings for the year 1874, and from January 1875 to July 1875. Edited by James Tyson, M.D., Hospital Professor of Pathological Anatomy and Histology in the University of Pennsylvania, etc., Recorder of the Society. Philadelphia: Printed for the Society by J. B. Lippincott & Co. 1876. 258 pages.

V. Determination of the Refraction of the Eye by means of the Ophthalmoscope. By Edward G. Loring, M.D., New York. From advanced sheets on the Ophthalmoscope. New York: Wm. Wood & Co., Publishers. 1876. 61 pages. (From the author.)

VI. American Association for the Cure of Inebriates. Proceedings of the Sixth Meeting, Held in Hartford, Conn., September 28, 1875. Published by order of the Association. 98 pages.